



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,548	03/17/2006	Yo Yamato	3273-0221PUS1	7436

2292 7590 10/17/2008  
BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER
----------

CHANG, VICTOR S

ART UNIT	PAPER NUMBER
----------	--------------

1794

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

10/17/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/572,548	<b>Applicant(s)</b> YAMATO ET AL.	
	<b>Examiner</b> VICTOR S. CHANG	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2008 and 18 August 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-7 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Introduction***

1. Applicants' amendments and remarks filed on 7/18/2008 and 8/18/2008 have been entered. Claims 1 and 7 have been amended. Claim 4 is cancelled. Claims 1-3 and 7 are active.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. In response to the amendments, the grounds of rejection have been updated as set forth below. Rejections not maintained are withdrawn.

### ***Claim Rejections - 35 USC § 102***

4. Claims 1-3 and 7 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Andrieu et al. [US 6261721].

Andrieu's invention relates to a cell separator comprising a macroporous matrix the pores of which contain a microporous polymer, placed in said macroporous matrix by impregnating said matrix with a solution containing said polymer, wherein said microporous polymer has a pore volume in the range from 35% to 95% [claim 1]. The microporous polymer has an average pore diameter is in the range from 0.1  $\mu\text{m}$  to 5  $\mu\text{m}$  [claim 2]. The microporous polymer can be selected from polyvinylidene fluoride (fluororesin), cellulose polyacetate (cellulose acetate resins), and polypropylene, etc. [claim 3]. The macroporous polymer matrix is obtained by phase inversion (conversion) process [claim 7]. The cell separator is prepared by a method comprising the following steps: 1) producing a solution of said polymer dissolved in a solvent; 2)

Art Unit: 1794

impregnating said microporous matrix with said solution; 3) immersing the impregnated matrix in a non-solvent that is miscible with said solvent; and 4) drying said impregnated matrix to eliminate said solvent and said non-solvent [claim 11]. The macroporous matrix has an initial pore volume in the range from 35% to 95% [claim 5].

For claims 1-3, since Andrieu's cell separator polymers are in contact with electrolyte, the polymers are chemical-resistant [specification, pp. 3-4]. Since the microporous polymer is used as a cell separator, it inherently comprises communicating micropores for required ionic conductivity through the pores. Regarding newly added limitation "an amount of the coat of the chemical-resistant polymeric compound is 0.01 to 50 percent by weight relative to the porous film", since Andrieu teaches a cell separator having the same structure and composition, and made by the same process as the claimed invention, the weight ratio between the microporous polymer and macroporous matrix are deemed to be either anticipated by Andrieu, or obviously provided by practicing the invention of prior art.

For claim 7, Andrieu is silent about the pure water permeation rate of the cell separator. However, since Andrieu anticipates all the structure and composition features of the claimed invention, a workable water permeation rate is deemed to be either anticipated, or obviously provided by practicing the invention of prior art, dictated by the same end use requirements.

### ***Response to Arguments***

5. Applicants argue at Remarks page 7 that

"the porous structure of the porous film of the present invention maintains its porous structure having a multiplicity of communicating micropores even when covered with a phenolic resin.

...

Art Unit: 1794

The porous films according to the present invention can also maintain the properties of the porous film base without deterioration.”

However, the macroporous matrix has an initial pore volume in the range from 35% to 95% [claim 5], and microporous polymer has a pore volume in the range from 35% to 95% [claim 1], clearly the pore volume is maintained.

Regarding applicants’ arguments at pages 7-11 over Example 14, the examiner notes that limitations absent from the claim language have not been considered. Applicants’ arguments are misplaced.

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VICTOR S. CHANG whose telephone number is (571)272-1474. The examiner can normally be reached on 7:00 am - 5:00 pm, Tuesday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1794

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Victor S Chang/  
Primary Examiner, Art Unit 1794